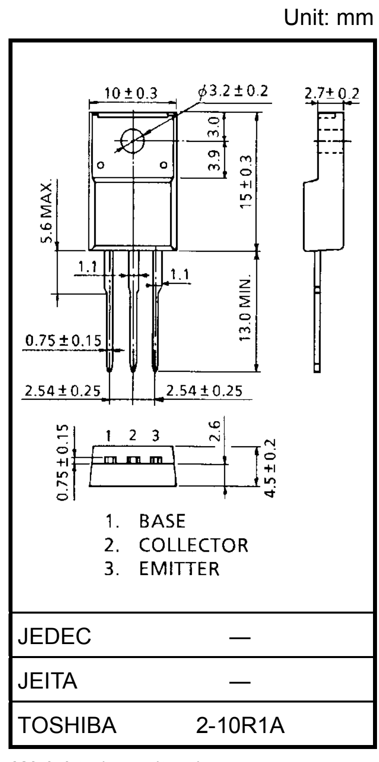
TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA1837

Power Amplifier Applications
Driver Stage Amplifier Applications

Unit: mm



JEDEC	―
JEITA	―
TOSHIBA	2-10R1A

Weight: 1.7 g (typ.)

- High transition frequency: f_T = 70 MHz (typ.)
- Complementary to 2SC4793

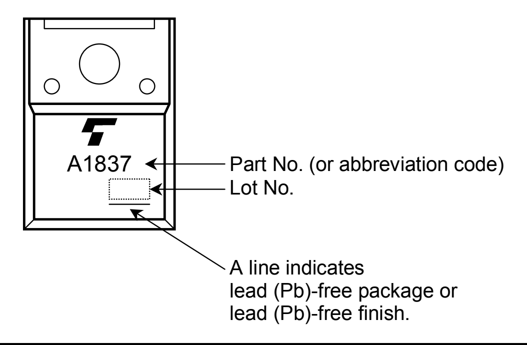
Maximum Ratings (Tc = 25°C)

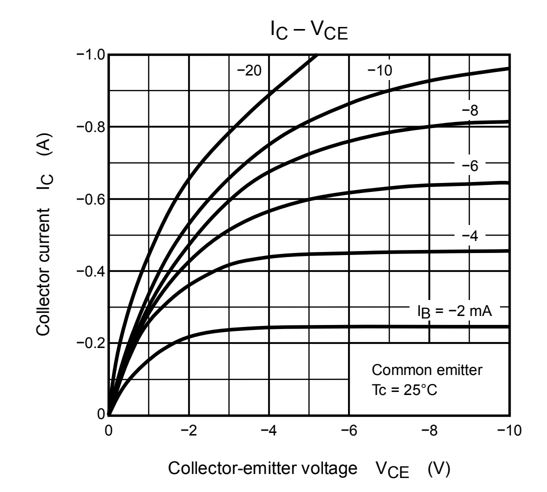
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	−230	V
Collector-emitter voltage		V_{CEO}	−230	V
Emitter-base voltage		V_{EBO}	−5	V
Collector current		I_C	−1	A
Base current		I_B	−0.1	A
Collector power dissipation	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		20	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

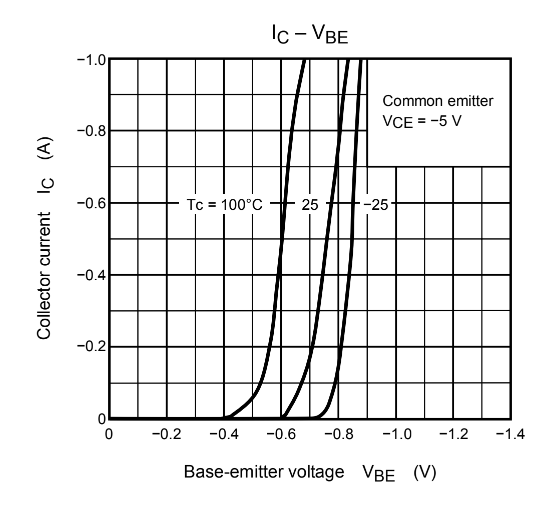
Electrical Characteristics (Tc = 25°C)

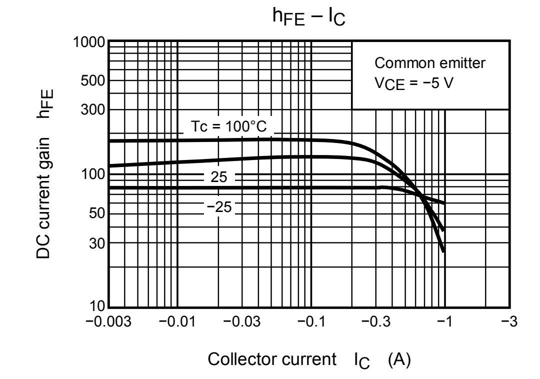
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −230 V, I_E = 0	—	—	−1.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = −5 V, I_C = 0	—	—	−1.0	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −10 mA, I_B = 0	−230	—	—	V
DC current gain	h_{FE}	V_{CE} = −5 V, I_C = −100 mA	100	—	320	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = −500 mA, I_B = −50 mA	—	—	−1.5	V
Base-emitter voltage	V_{BE}	V_{CE} = −5 V, I_C = −500 mA	—	—	−1.0	V
Transition frequency	f_T	V_{CE} = −10 V, I_C = −100 mA	—	70	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10 V, I_C = 0, f = 1 MHz	—	30	—	pF

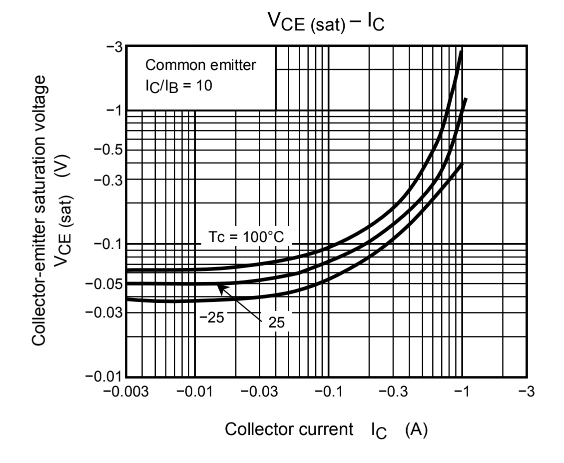
Marking

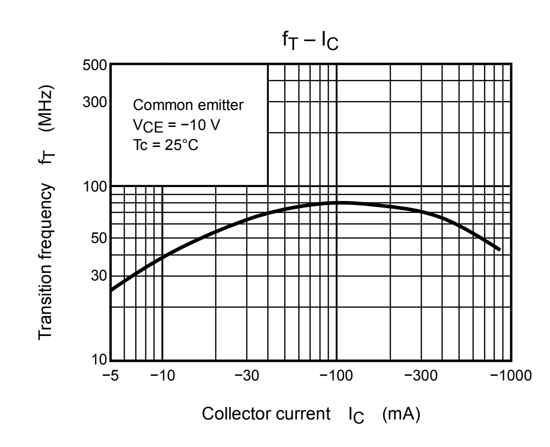


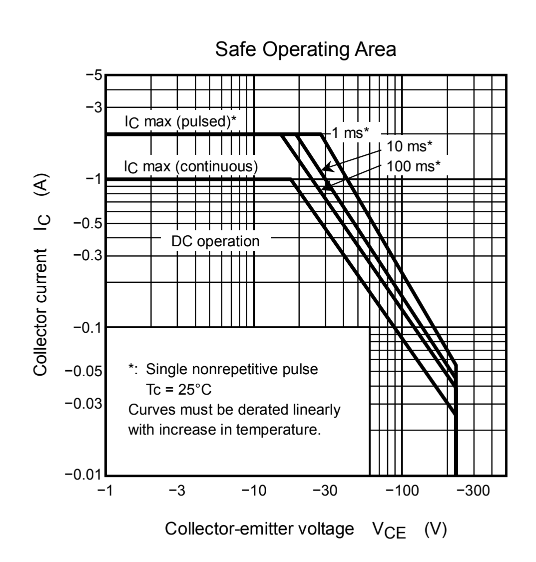

I_C – V_{CE}
−20
−10
−8
−6
−4
I_B = −2 mA
Common emitter
Tc = 25°C
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
−1.0
−0.8
−0.6
−0.4
−0.2
0
0
−2
−4
−6
−8
−10


I_C – V_{BE}
Common emitter
V_{CE} = −5 V
Tc = 100°C
25
−25
Collector current I_C (A)
Base-emitter voltage V_{BE} (V)
−1.0
−0.8
−0.6
−0.4
−0.2
0
0
−0.2
−0.4
−0.6
−0.8
−1.0
−1.2
−1.4


h_{FE} – I_C
Common emitter
V_{CE} = −5 V
Tc = 100°C
25
−25
DC current gain h_{FE}
Collector current I_C (A)
1000
500
300
100
50
30
10
−0.003
−0.01
−0.03
−0.1
−0.3
−1
−3


$V_{CE\ (sat)}$ – I_C
Common emitter
I_C/I_B = 10
Tc = 100°C
−25
25
Collector-emitter saturation voltage $V_{CE\ (sat)}$ (V)
Collector current I_C (A)
−3
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
−0.003
−0.01
−0.03
−0.1
−0.3
−1
−3


f_T – I_C
Common emitter
V_{CE} = −10 V
Tc = 25°C
Transition frequency f_T (MHz)
Collector current I_C (mA)
500
300
100
50
30
10
−5
−10
−30
−100
−300
−1000


Safe Operating Area
I_C max (pulsed)*
I_C max (continuous)
1 ms*
10 ms*
100 ms*
DC operation
*: Single nonrepetitive pulse
Tc = 25°C
Curves must be derated linearly
with increase in temperature.
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
−5
−3
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
−1
−3
−10
−30
−100
−300

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